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Title: IL0122687A1: FUNGICIDAL FORMULATION OF TEBUCONAZOLE DILUTED IN WATER CONTAINING A CRYSTALLIZATION INHIBITING ROSIN DERIVATIVE AND PROCESS FOR PREVENTING THE CRYSTALLIZATION THEREOF

Derwent Title: Crystallisation inhibition during spraying of fungicide solutions - consists of applying a tar product in solution containing tebuconazol ([Derwent Record](#))

Country: IL Israel

Kind: A1 Application Laid open to Publ. insp. I (See also: [IL0122687A0](#))

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MICHAEL GERMAN;

Assignee: MAKHTESHIM CHEMICAL WORKS LTD.
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Published / Filed: 2003-11-23 / 1997-12-21

Application Number: IL1997000122687

IPC Code: IPC-7: [A01N 43/653](#); [C07D 249/08](#);

ECLA Code: None

Priority Number: 1997-12-21 IL1997000122687

INPADOC Legal Status:

| Gazette date | Code | Description (remarks) | List all possible codes for IL |
|--------------|------|-----------------------|--------------------------------|
| 2008-01-22 | KB + | Patents renewed | |
| 2005-03-20 | KB + | Patents renewed | |
| 2004-05-12 | FF + | Patents granted | |

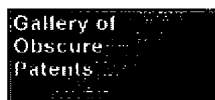
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Family:

| PDF | Publication | Pub. Date | Filed | Title |
|-------------------------------------|-------------|------------|------------|--|
| <input checked="" type="checkbox"/> | IL0122687A1 | 2003-11-23 | 1997-12-21 | FUNGICIDAL FORMULATION OF TEBUCONAZOLE DILUTED IN WATER CONTAINING A CRYSTALLIZATION INHIBITING ROSIN DERIVATIVE AND PROCESS FOR PREVENTING THE CRYSTALLIZATION THEREOF |
| <input checked="" type="checkbox"/> | IL0122687A0 | 1998-08-16 | 1997-12-21 | Novel crystallization inhibitors |
| <input checked="" type="checkbox"/> | BR9803583A | 1999-10-05 | 1998-09-16 | EMPREGO DE UM INIBIDOR DE CRISTALIZACAO DURANTE APLICACAO DE SOLUCOES AQUOSAS DE PULVERIZACAO CONTENDO O FUNGICIDA TEBUCONAZOL, PROCESSO PARA IMPEDIR A CRISTALIZACAO DO FUNGICIDA TEBUCONAZOL E FORMULACAO PESTICIDA DE TEBUCONAZOL |
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Other Abstract Info:

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מדינת ישראל
לשכת הפטנטים

חוק הפטנטים, התשכ"ז-1967
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תעודת פטנט

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זאת לתעודה כי הפרטים דלהלן
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Patent No: 122687
Date of Application: 21/12/1997
Title of Invention:

מס' הפטנט:
תאריך הבקשה:
שם האמצאה:

FUNGICIDAL FORMULATION OF
TEBUCONAZOLE DILUTED IN
WATER CONTAINING A
CRYSTALLIZATION INHIBITING
ROSIN DERIVATIVE AND PROCESS
FOR PREVENTING THE
CRYSTALLIZATION THEREOF

פורמולצית קוטל-פטריית של
טבוקונזול מדולל במים המכיל נגזרת
רוזין מונעת התגבשות ותהליך למניעת
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Date of Publication: 01/12/1988
Date of Grant: 08/12/2004

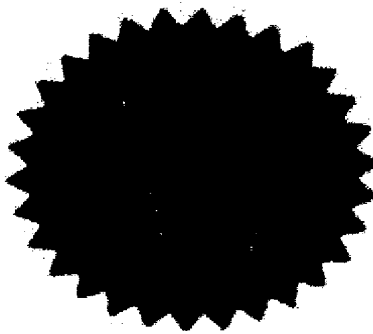
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מספר: 122687/4
Number

תאריך: 21-12-1997
Date

הוקדם/נדחה
Ante/Post-Dated

Inventor: ממציאים:
David Lubetzky דוד לובצקי
Michael German מיכאל גרמן



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חוק הפטנטים, תשכ"ז-1967
Patent Law, 5727 - 1967
בקשה לפטנט
Application for Patent

אני, (שם המבקש, מענו ולגבי גוף מאגד - מקום התאגדות)

I, (Name and address of applicant, and in case of body corporate-place of incorporation)

Makhteshim Chemical Works Ltd.
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מכתשים מפעלים כימיים בע"מ
חברה רשומה בארץ
אזור תעשייה, ת.ד. 60
באר שבע 84100

ששמה הוא L A W

Owner, by virtue of

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an invention the title of which is

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ותהליך למניעת התגבשותה

(בעברית)
(Hebrew)

FUNGICIDAL FORMULATION OF TEBUCONAZOLE DILUTED IN
WATER CONTAINING A CRYSTALLIZATION INHIBITING ROSIN DERIVATIVE
AND PROCESS FOR PREVENTING THE CRYSTALLIZATION THEREOF

(באנגלית)
(English)

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|---|--|--|--|---|---------------|-----------------------------------|
| מבקשת פטנט from Application | | לבקשה/לפטנט to Patent/Apl. | | מספר/סימן Number/Mark | תאריך Date | מדינת האגוד Convention Country |
| מס' _____ dated _____ | | מס' _____ dated _____ | | | | |
| *יפוי כח: כללי / מיוחד - רצוף / בזה / עוד יוגש P.O.A.: general / individual - attached / to be filed later הוגש בענין IL 122964 Address for Service in Israel נעם מושקין מחלקת קניין רוחני ת.ד. 1646 עומר 84965 מספרנו: 4.057(IL) | | | | <div style="border: 2px solid black; padding: 5px; text-align: center;">רשם הפטנטים - הספרייה 23 נוב' 2003 תאריך הפרסום Publication date: _____</div> | | |
| Signature of Applicant | | חתימת המבקש | | | | |
| For the Applicant NOAM MUSHKIN By: | | | | היום 18 בחודש 12 שנת 1997 This of of the year | | |
| | | | | לשימוש הלישכה | | |

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פורמולצית קוטל-פטריות של טבוקונזול מדולל במים המכיל נגזרת רוזין מונעת
התגבשות ותהליך למניעת התגבשותה

FUNGICIDAL FORMULATION OF TEBUCONAZOLE DILUTED IN
WATER CONTAINING A CRYSTALLIZATION INHIBITING ROSIN DERIVATIVE
AND PROCESS FOR PREVENTING THE CRYSTALLIZATION THEREOF

INTRODUCTION

The present invention relates to the new use of rosin and rosin derivatives for preventing the crystallization during application of aqueous spray liquors based on tebuconazole fungicidal active compound. The present invention more particularly concerns the use of rosin and rosin derivatives, to prevent the crystallization of the triazole fungicide, tebuconazole from certain of its formulations.

BACKGROUND OF THE INVENTION

Spray apparatuses which are usually employed for applying aqueous formulations of plant treatment agents contain several filters and nozzles. Thus, for example, there are suction filters between the suction component and tank pump, and furthermore pressure filters positioned in the pressure region downstream of the pump. Nozzle filters can also be present directly before the spray nozzles. All of these filters and the nozzles may be blocked to a greater or lesser extent by active compound which crystallizes out during application of aqueous spray liquors based on solid active compounds.

OBJECTIVES OF THE INVENTION

It is the objective of the present invention to provide a novel formulation for the fungicide tebuconazole which prevents the crystallization of the active ingredient upon dilution prior to its use as sprays. It is a further objective of the present invention to provide a formulation of tebuconazole with markedly improved properties with a much lower tendency to crystallize out than in previously reported formulations of tebuconazole.

SUMMARY OF THE INVENTION

We have found a new process for preventing the crystallization of the fungicide tebuconazole during the application of aqueous spray liquors thereof. The new process is characterized in that the crystallization inhibitor is chosen from the group consisting of rosin, rosin gum, hydrogenated rosin, and polymerized rosin gum. The new process yields a fungicide with markedly improved properties and with a much lower tendency to crystallize.

The ratio of crystallization inhibitor to tebuconazole fungicide of the new process is in the range of 0.05 to 25 to 5 to 20, preferably 0.1 to 5 to 2 to 15, and most preferably 0.1 to 1 to 1 to 10.

This invention further relates to a fungicidal formulation of tebuconazole diluted in water (aqueous spray liquor) containing a crystallization inhibitor selected from the group consisting of rosin, rosin gum, hydrogenated rosin and polymerized rosin. The new tebuconazole formulation is based on a ratio of crystallization inhibitor to tebuconazole in the range of 0.05 to 25 to 5 to 20, preferably 0.1 to 5 to 2 to 15, and most preferably 0.1 to 1 to 1 to 10.

This formulation may also contain various additives such as surface active substances, emulsifiers, polaric solvents with or without water, and the like. The formulations of the present invention are stable under the conventional testing conditions such as cold, hot and room storage conditions.

EXAMPLE 1

Formulation A containing 250 g/l of Tebuconazole having the following composition:

| | |
|--------------------------------|---------------|
| Tebuconazole tech 98.8%- | 253 g |
| Surfactant sorprofor 14/R- | 90 gr |
| Surfactant witconol NS-500-LQ- | 80 gr |
| Gum Rosin pale w/w- | 160 gr |
| Dipropylene glycol- | 70 gr |
| Soft water- | 120 gr |
| N-Methyl-Pyrrolidone(NMP) | up to 1000 ml |

was prepared by the following procedure:

160 gr of gum rosin, 70 gr of dipropylene glycol, and 61 gr of NMP were mixed while being heated to approximately 100°C. The mixing continued until full solubilization of the rosin. Approximately 20 min after solubilization the solution was cooled to 50°C and to this solution the rest of the additives and the tech. tebuconazole were added. This mixture was stirred for an additional 20 min until a clear solution obtained.

A comparative formulation B having the following composition:

| | |
|-------------------------------|---------------|
| Tebuconazole tech 98.8%- | 253 gr |
| surfactant soprofor 14/R- | 90 gr |
| Surfactant witconol NS-500LQ- | 80 gr |
| Dipropylene glycol- | 70 gr |
| Soft water- | 120 gr |
| NMP- | up to 1000 ml |

Each of the above formulations were diluted in water to 0.5%. (CIPAC-D, equivalent to 342 ppm hardener and a temperature of 30°C) and stirred by magnetic stirrer at 300 r.p.m. for 30 minutes and then sieved on a 400 mesh screen. The aqueous emulsion according to Formulation A showed no crystals remaining on the screen while the aqueous emulsion according to Formulation B had crystals which remained on the screen.

The emulsion stability of both above describe formulations were run by diluting with water to 0.5% without stirring keeping the temperature at 30°C in 100 ml cylinders. The two cylinders were allowed to stand without shaking or mixing for 2 hours. While the emulsion according to formulation A was free from sediment and crystals, the emulsion according to formulation B showed a considerable amount of needle-like crystals.

CLAIMS

1. A process for preventing the crystallization of the fungicide tebuconazole during the application of aqueous spray liquors characterized in that the crystallization inhibitor is chosen from the group consisting of rosin, rosin gum, hydrogenated rosin, and polymerized rosin.
2. A process according to Claim 1 wherein the ratio of crystallization inhibitor to tebuconazole fungicide is 0.05 to 25 to 5 to 20, preferably 0.1 to 5 to 2 to 15, and most preferably 0.1 to 1 to 1 to 10.
3. A fungicidal formulation of tebuconazole diluted in water (aqueous spray liquor) containing a crystallization inhibitor selected from the group consisting of rosin, rosin gum, hydrogenated rosin and polymerized rosin.
4. A formulation according to Claim 3 wherein the ratio of crystallization inhibitor to tebuconazole is 0.05 to 25 to 5 to 20, preferably 0.1 to 5 to 2 to 15, and most preferably 0.1 to 1 to 1 to 10.
5. A formulation according to Claim 3 containing:
 - (a) 2 to 25 parts by weight of tebuconazole; and
 - (b) 1.5 to 25 parts of weight of the crystallization inhibitor.

For the Applicants
Noam Mushkin
By: 